

I Claim

1. A seal comprising a seal edge to be held in close proximity in use to a relatively rotating surface, the edge being reinforced by creases extending away from the edge, characterised in that a desired distribution of perforations is provided above the edge to facilitate air pressure differential across the edge as the rotating surface rotates in relation to the edge and the rotating surface rides upon an enhanced pressure created by air leakage through the perforations.
2. A seal comprising a seal edge to be held in close proximity to a rotating surface in use, the edge being reinforced by creases extending away from the edge, characterised in that between the creases the edge includes slots to facilitate flexibility in the edge when held in close proximity to the rotating surface.
3. A seal as defined in claim 1 and claim 2.
4. A seal as claimed in claim 1 wherein the seal includes a plurality of edges in a seal assembly and these edges are presented upon respective spaced seal elements of the seal assembly.
5. A seal as claimed in claim 1 wherein the perforations are graded outwardly from the edge.
6. A seal as claimed in claim 5 wherein the perforations nearer to the edge are relatively small compared to perforations further displaced from the edge.
7. A seal as claimed in claim 5 wherein the perforations nearer to the edge have a greater population density per unit area compared to perforations further displaced from the edge.
8. A seal as claimed in claim 1 wherein the perforations are configured from one side to the other to facilitate airflow to achieve the desired air pressure differential across the edge.

9. A seal as claimed in claim 1 wherein the creases are angular relative to the edge in order to form a ring with sails defined between respective adjacent creases.
10. A seal as claimed in claim 4 wherein creases in the 5 adjacent spaced seal elements are in a respectively opposed relationship relative to each other.
11. A seal as claimed in claim 2 wherein the slots extend substantially perpendicular to the major axis of the edge.
12. A seal as claimed in claim 2 wherein the slots 10 terminate in one of a keyhole and a bulbous end to inhibit crack propagation due to flexing of the edge.
13. A seal as claimed in claim 2 wherein the slots are of varying lengths extending from the edge.
14. A seal as claimed in claim 2 wherein the slots have a 15 length at least equivalent to the expected wear depth in use of the seal.
15. A seal as claimed in claim 1 wherein the edge is substantially straight between respective creases.
16. A seal as claimed in claim 1 wherein the edge is 20 curved between respective creases.
17. A seal as claimed in claim 1 wherein one of a stiffener fold and a stiffener element is secured to the seal to further reinforce each edge.
18. A seal as claimed in claim 1 wherein the seal is 25 associated with an air deflector in order to further facilitate air pressure differential across the edge.
19. A seal as claimed in claim 1 wherein the edge is formed upon a spiral which extends for a number of cycles to form the seal.
- 30 20. A method of forming a seal element including the steps of taking a length of material and forming a number of creases to define a seal edge and characterised in that there is perforation of that length of material such that when formed there is a specific distribution of
- 35 21. A method of forming a seal element including the steps of taking a length of material and forming a number of creases to define a seal edge and characterised in that there is perforation of that length of material such that when formed there is a specific distribution of

of taking a length of material and forming a number of creases to define a seal edge and characterised in that slots are formed in the length of material which when the seal is formed extend from the seal edge to render that  
5 edge more flexible.

22. A method of forming a seal element as claimed in claim 20 and claim 21.

23. A method as claimed in claim 20 wherein the ends of the length of material are welded or otherwise secured  
10 together to form a ring.

24. A method as claimed in claim 21 wherein the ends of the length of material are welded or otherwise secured together to form a ring.

25. A method as claimed in claim 20 wherein the  
15 perforations are formed such that there is a size graduation away from the seal edge.

26. A method as claimed in claim 25 wherein the perforations near to the edge are formed smaller than those at more displaced positions.

20 27. A method as claimed in claim 25 wherein the perforations nearer to the edge are formed with a greater population density per unit area than those at more displaced positions.

28. A method of making a seal assembly wherein a number of  
25 seals in accordance with claim 1 are secured in alignment with the respective seal edges of the seals presented towards the relatively rotating surface.

29. A method as claimed in claim 28 wherein spacing elements are located between adjacent seals.

30 30. A method as claimed in claim 28 wherein the respective seals are secured in one of a recess and an aperture to form the seal assembly.